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ABSTRACT

There is a natural tension between experimentally designed studies and case studies, which differ in that they are not concerned with the interaction of variables in the quantitative and statistical sense. This paper describes a study that was not experimentally designed, but its major findings were generalizable to the overall population of writers in college freshman composition classes. The study was not a case study, but it provided insights into the attitudes and feelings of small clusters of student writers. The study used analysis of variance to determine whether or not a relationship existed among three factors: (1) writing apprehension; (2) inclination to write voluntarily; and (3) quality of composition. There was no control group; the study was correlational, and because of the number of subjects (255 college freshman) and the scrupulous consistency of statistical treatment procedures, it was generalizable. A series of factorial analyses was made of student responses to open-ended questions, and a subsequent analysis was made of specific expressions within the response categories on tally sheets constructed from subject responses. With these definitions, seven uniquely discernible levels of writing apprehension emerged, made more definite by inclusion of an additional response category. The study illustrates the importance of quantitative and case study analyses. It is concluded that researchers can benefit from using both approaches. Four tables present study data. There is an 18-item list of references. (SLD)

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THE CURRENT CONFLICT BETWEEN CASE STUDY AND EXPERIMENTAL RESEARCH: A BREAKTHROUGH STUDY DERIVES BENEFITS FROM BOTH

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The Current Conflict between Case Study and Experimental Research: A Breakthrough Study Derives Benefits from Both

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There is a natural tension in composition research between experimentally designed studies and case studies. The experimental method is the best approach for determining the causal effect of an independent variable or variables on something dependent. Case studies are different in that they are not concerned with the interaction of variables in the quantitative and statistical sense.

In experimentally designed studies, "experimental" and "control" groups are used and every effort is made to assure that a balance is maintained between the groups concerning everything other than the aspect of composition or instruction that is being tested. If experimental research is conducted properly, then whatever measurable differences occur will be legitimately attributable to the interaction between the independent and dependent variables.

Case studies do not begin with testable hypotheses, do not involve experimental and control groups and do not try to arrive at conclusions that are generalizable to a larger population. A researcher says, in effect, "I want to see what I can learn by watching a few students very closely," and proceeds to do so with scrupulous attention to detail. Hypotheses are not testable by case studies. They are the outgrowth of case studies.

The research studies of John Mellon (1968) and Frank O'Hare (1973) are examples of experimental designs. Both featured experimental groups which studied sentence combining and compared control groups which studied grammar. In each study the experimental group produced statistically significant results in a number of measurable categories when contrasted with a control group and those results were found to be generalizable to the overall population of student writers.

A contrasting example would be Janet Emig (1971) who studied eight isolated students and focused much of her observation on the activities of a single student, whose processes she found to be of particular interest.

The intimacy of the case study format permitted her to observe that her research subjects used contrived "extensive" writing for their course work and lively "reflexive" writing in private. By directly observing such behavior she was able to hypothesize that the students' reflexive writing was characterized by a vitality that was almost always missing from their extensive writing.

Recently, this author conducted a study that was not an experimentally designed study. Yet its major findings were generalizable to the overall population of writers in college-level freshman composition classes. It was not a case study and yet it provided unique and rather intimate insights into the attitudes and feelings of small clusterings of student writers who were bound to be linked by common attitudes toward writing and mutual feelings that each experienced individually within a shared, narrowly-defined range of personal writing apprehension.

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Like experimentally designed research, this study was quantitative and statistical. It utilized analysis of variance to determine if a relationship existed between three factors: Writing apprehension, inclination to write voluntarily, and quality of composition. Yet, there was no control group as is normally the case with experimental design. The study instead was correlational in nature and because of the number of subjects involved (255) and the scrupulous consistency of the statistical treatment procedures, it was generalizable.

Conversely, the use of open-ended questions in this research project provided an opportunity for the subjects to express in their own words, their reactions to everything about the composition process that they found to be personally meaningful. With frequent reference to the detailed and exacting classification procedures proscribed by Purves and Rippere (1968), a method was developed for classifying the student comments into a systematic and workable format from which to derive meaning from the responses of the group of 255. This is not a problem that a researcher usually encounters within either an experimentally designed project or a correlational study. This is, typically, a case study or experiential researcher's problem.

In the end, the correlational findings of this study are extremely important but the specific patterns derived from the subjects' responses to the open-ended questions are equivalently important.

From a statistical standpoint, the findings of earlier researchers (Daly, 1979; Petrosko, Kaiser, and Dietrich, 1984) have been confirmed since low apprehensives (those with scores of 79 and above) have been shown to produce essay scores that are significantly higher than those produced by high apprehensives (those with scores of 78 and below). In other words, people who are not anxious about their writing produce higher quality essays than those who are anxious. See Table 1.

A series of factorial analyses were made of the subjects responses to the open-ended questions. These initial analyses failed to identify naturally emergent combinations in the pattern of the three desired, preliminarily defined statements: I like to write and do so voluntarily; I don't like to write and try to avoid it; my feelings are neutral on the subject. However, a subsequent analysis was made of the subjects' specific expressions within the response categories on the tally sheets that had been constructed from the subjects responses. That analysis sought to identify the overt nature of what was being said by the subjects who provided each of those responses. Three expressions were identified as overt expressions of inclination to write and willingness to do so voluntarily:

"Anything encourages me."
"I enjoy writing to friends (e.g. letters)."
"I enjoy writing for myself (e.g. diaries, journals, poetry, etc.)."

Two expressions were identified as overt expressions of dislike of writing and inclination to avoid it:

"Lack of interest in writing keeps me from writing."
"I'd rather call or speak."

The factorial alignment of two other expressions also resulted in their acceptance as expressions of dislike of writing and inclination to avoid it:

"I am encouraged to write when I am required to (deadlines help me)."

together with omission of all reference to

"New (unique) ideas and experiences could make writing easier."

All other response categories were accepted as expressions of neutrality.

With these definitions, seven uniquely discernible levels of writing apprehension emerged. However, the combination of the writing apprehension levels and the identified attitudes toward writing failed to produce a statistically significant effect on essay scores until an additional response category was accepted as part of the definition of "Like to write; do it voluntarily." That response category was, "Desire to affect my audience." Inclusion of this response category effectively expanded the Like to write expression to: "I am inclined to write; do so voluntarily; and am aware of my audience and of the importance of considering their reaction to my writing." Once this response category was accepted, the seven discernible levels of writing apprehension and the three attitudes toward writing resulted in a statistically significant interaction effect upon the essay scores. (See Table 2.) Acceptance of that final response category and the linchpin nature of its impact also served to confirm the value of the rhetorical model hypothesized by Flower and Hayes in their 1980 case study. Further statistical analysis also indicated that in the absence of an interaction effect writing apprehension has the same effect across all groups despite the previously cited tendency for low apprehensives to produce composition scores that are significantly higher than those produced by high apprehensives. See Table 3.

Highly apprehensive writers who like to write and do so voluntarily also produced better essay scores than comparably apprehensive writers who indicated that they did not like to write, or those who expressed no inclination either way.

Subjects with limited apprehension (90 to 99 on the WAT) who like to write and do so voluntarily also produced better essay scores than comparably apprehensive writers who indicated that they did not like to write or those who expressed no inclination either way.

However, subjects in the other categories who like to write and do so voluntarily either produced essays of lesser quality than those produced by subjects with other attitudes or they were involved in categories that were indeterminant because there were so few individuals at the extremities of the writing apprehension scale.

There are also findings in this study that characterize the collective subjects' responses within each cell of Table 4. Within these findings every combination of each level of writing apprehension, together with each attitude toward writing had some articulated expression of common feelings about the experiences of writing and learning to write in an academic setting. Several of these cells are represented by fewer than ten subjects and all the cells are represented by fewer than thirty subjects--the number that is recognized across disciplines as being the minimum necessary for statistical generalizability (Glass

and Hopkins, 1984; Chao, 1984). In effect, each of these collective statements of a few student writers with common levels of writing apprehension and common attitudes toward writing, constitutes a case study finding. No attempt should be made to generalize these statements to larger populations. This is the stuff from which hypotheses are made and each of these collective response patterns should be considered a hypothetical statement of the views and attitudes of that specific group of student writers. Future researchers may test these hypotheses to determine the generalizable value of each.

However, there are indisputable points of extraordinary value among these subject comments. These are subjects who are often struggling and very frustrated but who want things to be better. Sometimes their responses are superficially immature but at other times penetrating and extremely valuable insights are expressed, which is to say that the responses represent an authentic range of student voices.

Importantly, these are the voices of students themselves and not the broad representations of researchers. Case study is uniquely capable of hearing such voices and of discerning subtleties of meaning that can usually only be detected in a very intimately focused format.

In support of case study analysis, Donald Graves (1980) has gone so far as to say that most experimental research is difficult to read and primarily written for other researchers and for self-promotion in a publish-or-perish context. Janet Emig (1982) has echoed Graves' views and also diminished the value of comparison group studies. Then in his remarkable meta analysis, which synthesized the experimenmtal research projects of the preceding twenty years, George Hillocks (1984) found it necessary to respond to Graves and Emig to justify the legitimacy of his own earlier research (1979, 1982), as well as that of experimental researchers everywhere.

This is reminiscent of the continuous strain that exists within American education between the emphasis on excellence and its determination to obtain the best possible education for the brightest students and corresponding pressure for egalitarian reassurance that the rest of American students should not be left behind. Only the rarest of voices is heard speaking for the obvious answer--that we need both emphasis on excellence and on egalitarianism (Dewey, 1902, 1916, 1938; Tanner and Tanner, 1980). The same conclusion must be arrived at in considering the value of quantitative versus case study analyses. Both are important. Each makes contributions that the other cannot make. We need them both.

TABLE 1

ANOVA

Effect on Essay Scores of Low Apprehension vs. High Apprehension

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	41.10179025	41.10179025	5.06	0.0254
Error	253	2056.44706230	8.12824926		
Corrected Total	254	2097.54885255			

SAS
GENERAL LINEAR MODELS PROCEDURE
TUKEY"S STUDENTIZED RANGE (HSD) TEST FOR VARIABLE: ESSAY
Note: This test controls the Type I experimentwise error rate, but generally has a higher Type II error rate than Regwq

Alpha=0.05 DF=253 MSE= 8.12825
Critical Value of Studentized Range=2.785
Minimum Significant Difference=.73393

Warning: Cell sizes are not equal.
Harmonic mean of cell sizes=117.051

Means with the same letter are not significantly different.

Tukey	Grouping	Mean	N	Level
	A	7.1562	164	2
	B	6.3181	91	1

TABLE 2

ANOVA

Effect on Essay Scores of Different Levels of Writing Apprehension and Inclination to Write Voluntarily using definition of "Like to write; do it voluntarily" as "Encourages 1," "Encourages 3," "Encourages 4," or "Encourages 19"

Source	DF	Sum of Squares	Mean Square	F Value	PR > F
Model	19	286.43450989	15.07550052	1.96	0.0114
Error	235	1811.11434266	7.70686954		
Corrected Total	254	2097.54885255			

TABLE 3

ANOVA

Effect on Essay Scores of Writing Apprehension Level

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	76.01962150	12.66993692	1.55	0.1611
Error	248	2021.52923105	8.15132754		
Corrected Total	254	2097.54885255			

TABLE 4

Essay scores derived by accepting "Like to write; do it voluntarily" as defined by "Encourages 1," "Encourages 3," "Encourages 4" and "Encourages 19"

Writing Apprehension Level	Inclination to Write	Essay Mean Score	Number of Subjects
Extreme Lack of Apprehension 114 - 130	Neutral	12.00	1
	Do not like to write	6.33	3
	Like to write; do it voluntarily	7.38	8
Comparatively Little Apprehension 100 - 113	Neutral	7.08	13
	Do not like to write	8.03	12
	Like to write; do it voluntarily	6.41	17
Limited Apprehension 90 - 99	Neutral	7.05	21
	Do not like to write	6.67	10
	Like to write; do it voluntarily	8.53	20
Moderately Lacking in Apprehension 79 - 89	Neutral	7.23	25
	Do not like to write	7.40	21
	Like to write; do it voluntarily	5.00	13
Moderately Apprehensive 67 - 78	Neutral	5.76	17
	Do not like to write	6.20	22
	Like to write; do it voluntarily	7.00	15
Very Apprehensive 54 - 66	Neutral	6.03	11
	Do not like to write	6.85	13
	Like to write; do it voluntarily	7.61	6
Extremely Apprehensive 26 - 53	Neutral	2.89	3
	Do not like to write	6.50	4
	Like to write; do it voluntarily		0

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